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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,903	02/23/2004	Katsunori Kawano	118796	7507
25944 7590 04/25/2007 OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320			EXAMINER AMARI, ALESSANDRO V	
			ART UNIT	PAPER NUMBER
			2872	
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		04/25/2007	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/782,903

Applicant(s)

KAWANO ET AL.

Examiner

Alessandro Amari

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 05 March 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 9-15 and 18-20 is/are rejected.
- 7) ☒ Claim(s) 7, 8, 16 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/10/04; 1/6/05; 3/7/07</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election with traverse of Group I (claims 1-18) in the reply filed on 05 March 2007 is acknowledged. The traversal is found persuasive and so claims 1-20 will be examined in this office action.

### ***Claim Objections***

2. Claims 1-11 are objected to because of the following informalities:

In regard to claim 1, line 3, the phrase, "reference right beam" appears to be misspelled. Claims 2-11 inherit the same issue.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-6, 9-15 and 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Wilson et al US 6,697,180.

In regard to claim 1, Wilson et al discloses (see Figures 1, 2) a hologram recording method comprising irradiating an optical recording medium (202) with a signal light beam (26) and a reference light beam (11) which has a predetermined shape and

Art Unit: 2872

intensity on the optical recording medium corresponding to an intensity distribution of the signal light beam on the optical recording medium as described in column 2, lines 57-67, column 3, lines 1-5, column 5, lines 5-67 and column 6, lines 19-48. Although the prior art does not specifically disclose the reference light and the signal light beams intensity correspondence, this is seen as an inherent teaching of the device since the reference and signal light beam intensities must correspond in order for the device to function as intended.

Regarding claim 2, Wilson et al discloses that the intensity distribution of the reference light beam on the optical recording medium substantially coincides with the intensity distribution of the signal light beam as described in column 2, lines 57-67, column 3, lines 1-5, column 5, lines 5-67 and column 6, lines 19-48.

Regarding claim 3, Wilson et al discloses that the reference light beam has a wavefront which is generated by using a computer-generated hologram as described in column 9, lines 13-16.

Regarding claim 4, Wilson et al discloses that the computer-generated hologram is a kinoform in which only a phase of an object light beam is recorded as described in column 9, lines 13-16.

Regarding claim 5, Wilson et al discloses further comprising designing the kinoform so as to generate the reference light beam having a random phase as described in column 5, lines 5-33.

Regarding claim 6, Wilson et al discloses further comprising irradiating the optical recording medium with the signal light beam after the signal light beam has been

Fourier transformed by a lens (16-18) as described in column 5, lines 61-67 and column 6, lines 1-4.

Regarding claim 9, Wilson et al discloses further comprising supplying a recording signal of each page with predetermined timing so that each page of the hologram is recorded from a recording start position at an interval of a predetermined amount of shift as described in column 6, lines 49-67, column 7, lines 1-67 and column 8, lines 1-6.

Regarding claim 10, Wilson et al discloses further comprising performing shift multiplex recording by rotating the optical recording medium as described in column 6, lines 49-67, column 7, lines 1-67 and column 8, lines 1-6.

Regarding claim 11, Wilson et al discloses further comprising performing the shift multiplex recording by moving the optical recording medium in line as described in column 6, lines 49-67, column 7, lines 1-67 and column 8, lines 1-6.

In regard to claim 12, Wilson et al teaches (see Figures 1, 2) a hologram recording method comprising (a) separating a laser beam into a light beam for a reference light beam (11) and a light beam for a signal light beam (26); (b) setting a region corresponding to a minimum Fourier transform component essentially required for data reproduction as described in column 5, lines 17-67; (c) designing a kinoform so that only the region is irradiated with the reference light beam having a random phase as described in column 9, lines 12-16; (d) generating the reference light beam from the light beam for the reference light beam by using a computer-generated hologram in which the kinoform is recorded as described in column 5, lines 17-67 and column 6,

Art Unit: 2872

lines 19-48.; (e) generating the signal light beam from the light beam for the signal light beam by using a spatial light modulator (15); (f) Fourier transforming the signal light beam with a lens (16-18) when the signal light beam holds a two-dimensional digital data image as described in column 5, lines 17-67; and (g) recording a hologram (27) by irradiating an optical recording medium with the reference light beam and the Fourier-transformed signal light beam at the same time as described in column 2, lines 57-67, column 3, lines 1-5, column 5, lines 5-67 and column 6, lines 19-48.

Regarding claim 13, Wilson et al teaches that the reference light beam has a predetermined shape and intensity on the optical recording medium corresponding to an intensity distribution of the signal light beam on the optical recording medium as described in column 2, lines 57-67, column 3, lines 1-5, column 5, lines 5-67 and column 6, lines 19-48.

Regarding claim 14, Wilson et al teaches the intensity distribution of the reference light beam on the optical recording medium substantially coincides with the intensity distribution of the signal light beam as described in column 2, lines 57-67, column 3, lines 1-5, column 5, lines 5-67 and column 6, lines 19-48.

Regarding claim 15, Wilson et al teaches that the reference light beam generating process (d) includes generating the reference light beam having a wavefront by using the computer-generated hologram as described in column 9, lines 13-16.

Regarding claim 18, Wilson et al teaches further comprising supplying a recording signal of each page with predetermined timing so that each page of the hologram is recorded from a recording start position at an interval of a predetermined

Art Unit: 2872

amount of shift as described in column 6, lines 49-67, column 7, lines 1-67 and column 8, lines 1-6.

In regard to claim 19, Wilson et al teaches (see Figures 1, 2) a hologram recording apparatus comprising a light source (26) for outputting a coherent light beam; a spatial light modulator (15) for modulating the light beam from the light source in accordance with data and generating a signal light beam; and a holographic optical element (10) for generating a reference light beam having a predetermined shape and intensity on an optical recording medium corresponding to an intensity distribution of the signal light beam on the optical recording medium, from the coherent light beam outputted from the light source, whereby a hologram is recorded by irradiating the optical recording medium with the signal light beam and the reference light beam as described in column 2, lines 57-67, column 3, lines 1-5, column 5, lines 5-67 and column 6, lines 19-48.

Regarding claim 20, Wilson et al teaches that a kinoform is recorded in the holographic optical element, and the kinoform is designed to record only a phase of an object light beam in the kinoform, for generating the reference light beam having a random phase as described in column 9, lines 13-16.

### ***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Trisnadi US 5,627,664 teaches a hologram recording method wherein the reference beam is encoded with a random phase pattern.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alessandro Amari whose telephone number is (571)272-2306. The examiner can normally be reached on Monday-Friday 8:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone B. Allen can be reached on (571) 272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ava  
19 April 2007

  
ALESSANDRO AMARI  
PRIMARY PATENT EXAMINER